UniversitätsSpital Zürich

Episodic vestibular syndrome - Vestibular migraine vs. Menière's disease

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EAN Spring School 2018
Staré Splavy, Czech Republic

Episodic spontaneous vertigo → Menière's disease, vestibular migraine, transient-ischemic attacks, cardiac arrhythmia

Table 1
Timing-and-trigger–based vestibular[a] syndromes

Timing	Obligate Triggers[b] Present	No Obligate Triggers[b]
New, episodic	t-EVS (eg, BPPV)	s-EVS (eg, cardiac arrhythmia)
New, continuous	t-AVS (eg, post gentamicin)	s-AVS (eg, posterior fossa stroke)
Chronic, persistent	Context-specific chronic vestibular syndrome (eg, uncompensated unilateral vestibular loss, present only with head movement)	Spontaneous chronic vestibular syndrome (eg, chronic, persistent dizziness associated with cerebellar degeneration)

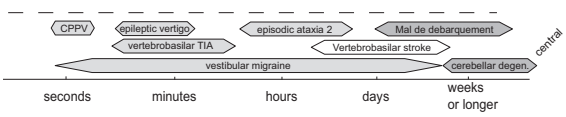
Abbreviations: t-EVS, triggered episodic vestibular syndrome; s-EVS, spontaneous episodic vestibular syndrome; t-AVS, traumatic/toxic acute vestibular syndrome; s-AVS, spontaneous acute vestibular syndrome.

Newman-Toker and Edlow (2015) Neurol Clin. 33: 577–599

Transient / episodic vertigo

Most frequent central causes

- Vestibular migraine
- Vertebrobasilar TIA
- Episodic ataxia type 2 (EA 2)
- Epileptogenic vertigo[1]
- Central paroxysmal positional vertigo (CPPV)

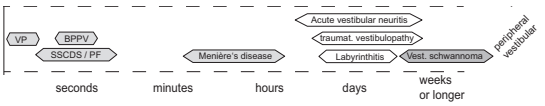


[1] Tarnutzer et al. 2015. Neurology. 84(15):1595-604

Transient / episodic vertigo

Most frequent peripheral causes

- Menière's disease
- Benign paroxysmal positional vertigo (BPPV)
- „mild" vestibular neuritis
- Vestibular paroxysmia



New developments

Vestibular migraine (VM)

- Now listed as a diagnosis (A1.6.6) in the appendix of the International Classification of the Headache Society (ICHD III).

Cephalalgia 2013;33(9) 629–808

Menière's disease (MD)

- New diagnostic criteria according the Classification Committee of the Bárány Society (2015)

Lopez-Escamez et al. JVR. 2015;25:1-7

Overlap-syndrome

Overlap between vestibular migraine and Menière's disease

- Increased prevalence of migraine in patients with Menière's disease.[1-3]
- Fluctuating hearing loss, tinnitus and aural fullness also seen in VM, but hearing loss more subtle than with Menière's disease.[4]
- Caloric irrigation triggered migraine attacks within 24h in up to 49% of predisposed patients.[5]
- 13% of patients meet diagnostic criteria for both VM **and** Menière's disease.[6]
- Menière's disease as atypical variant of migraine?[3]

[1] Radtke et al. Neurol. 2002;59:1700–1704
[2] Cha et al. Acta Otolaryngol. 2007;127:1241–1245
[3] Ghavami et al. Laryngoscope. 2015; Jun 24. doi:10.1002/lary.25344.
[4] Radtke et al. Cephalalgia. 2011;31:906–913
[5] Murdin et al. Neurology. 2009; 73:638–642.
[6] Neff et al. Otol Neurotol. 2012; 33:1235-44

Clinical presentation of VM and MD – theory and real life situation

- Updated diagnostic criteria

BUT

- Clearly **overlapping** clinical presentation at the bedside

→How to interprete these findings?
→Which clinical and additional findings help in differentiating VM from MD?

Vestibular migraine - update

Vestibular migraine - key facts

- Second most frequent cause for episodic vertigo/dizziness after the benign paroxysmal positional vertigo.
- Most frequent cause for an episodic, non-triggered vertigo/dizziness.
- Lifetime prevalence about 1%
- Women are affected 5x more often.
- Vertigo attacks often delayed by years or decades after onset migraine headaches. Accumulated at the onset of the menopause, while migraine headaches at the same time become less frequent.

Neuhauser et al. (2006) Neurology; 67:1028-33
Lempert and Neuhauser (2009) J Neurol 2009; 256:333–338.
Bisdorff et al. (2010). Cephalalgia;30:815–820.

Vertigo + migraine = vestibular migraine?

- Dizziness/vertigo in up to 50% of all migraine headache attacks
- Occurrence of dizziness/vertigo and migraine may be coincidence (Prevalence of migraine=10-25%, prevalence of vertigo=5-10%).
- In a case series of newly diagnosed migraine patients 10% met the diagnostic criteria for vestibular migraine (Cho et al. 2015).

Vestibular migraine - diagnostic criteria (ICHD 3)

A. ≥5 episods fulfilling criteria C and D

B. A current or past history of migraine (with / without aura) according the diagnostic criteria of the International Headache Society (IHS)

C. Vestibular symptome of moderate or severe intensity, lasting between 5min and 72h.

D. At least 1 of those 3 migraine-associated symptoms in at least 50% of the episods
   1. Headache with at least 2 of the following 4 characteristics
      i. Unilateral location
      ii. Pulsating quality
      iii. Moderate or severe intensity
      iv. Aggravation by routine physical activity
   2. Photophobia and phonophobia
   3. Visual aura

E. No better accounted four by another ICHD-3 diagnosis or by another vestibular disorder.

Headache classificiation committee of the IHS Cephalalgia 2018; 38(1): 1–211

Pathophysiology of vestibular migraine – vestibulo-thalamo-cortical pathways

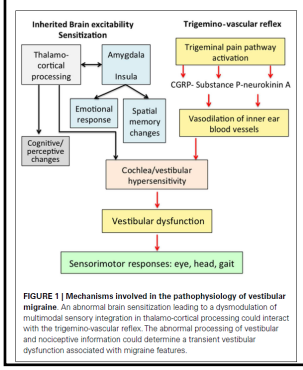
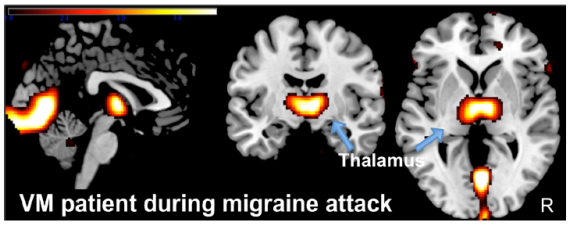


FIGURE 1 | Mechanisms involved in the pathophysiology of vestibular migraine. An abnormal brain sensitization leading to a dysmodulation of multimodal sensory integration in thalamo-cortical processing could interact with the trigemino-vascular reflex. The abnormal processing of vestibular and nociceptive information could determine a transient vestibular dysfunction associated with migraine features.

Reciprocal commenctions between brainstem vestibular nuclei and the structures that modulate trigeminal nociceptive inputs → **trigemino-vestibulocochlear reflex**

Espinosa-Sanchez and Lopez-Escamez. Front. Neurol. 2015; 6:12

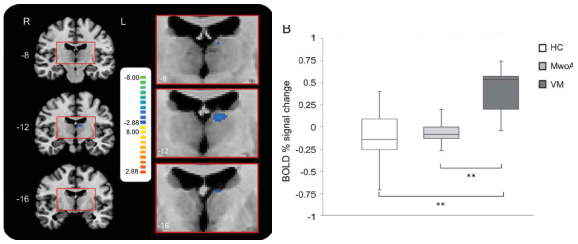
fMRI in vestibular migraine



Clinical presentation: dizziness and central positional nystagmus for 72 hours

Dieterrich et al. 2016 J Neurol. 263 (Suppl 1):S82–S89

Increased thalamic activation to caloric irrigation in VM



The magnitude of thalamic activation was positively correlated with the frequency of migraine attacks in patients with VM

Russo et al. Neurology 2014;82:1–7

Vestibular migraine: **clinical presentation**

Strongly varying semiology:
- Rotational vertigo
- Increased motion sensitivity for head movements
- Position-dependent dizziness
- Intolerance of visual stimuli

Duration varies broadly:
- 20% between 5 and 60 minutes
- But symptome may last only seconds or may be chronic.

Variable association between vertigo and headache:
- Present at the same time in only 70% of cases.

Duration of vertigo attacks in VM

Table 1 Clinical characteristics of vertigo and concomitant symptoms in 61 patients with definite vestibular migraine

Vertigo	Initial presentation, %	Follow-up, %
Type*		
Spontaneous	85	95
Spinning	75	82
Positional	39	80
Isolated positional	13	5
Head-motion-induced	61	84
Episodes with recurrent short spells of spontaneous or positional vertigo	54	90
Unsteadiness	66	90
Duration of attacks*		
<1 min	31	75
1–5 min	30	56
5–60 min	34	64
<24 h	49	74
>24 h	52	69

Radtke et al. Neurology. 2012;78:1648–1654

Ictal ocular motor and vestibular symptoms in VM

Table 2 *Symptoms in 20 patients during acute migrainous vertigo*

Symptom	*n*	%
Vestibular		
Constant vertigo	6	30
Positional vertigo	8	60
Head motion intolerance	6	30
Cochlear		
Aural pressure	4	20
Hearing loss	0	0
Tinnitus	0	0
Autonomic		
Nausea	19	95
Vomiting	10	50
Diarrhoea	2	10
Polyuria	1	5
Visual		
Oscillopsia	10	50
Migrainous		
Photophobia	14	70
Headache	13	65
Osmophobia	3	15
Phonophobia	2	10
Aura	2	10

- Pathologic nystagmen in 70% (Spontaneous nystagmus or positional nystagmus)
- Gait ataxia in 95%
- Central vestibular dysfunction in 50%, peripheral vestibular dysfunction in 15%.

Von Brevern et al. Brain. 2005;128:365–374

Interictal ocular motor and vestibular signs in VM / M

Table 5.—Frequencies of Pathological Test Results in Vestibular Migraine (VM) Cases Compared With Cases of Migraine Without Vertigo (M)

Clinically evaluated tests, N (%)	VM patients, N = 38	M patients, N = 32	*P* value
Romberg's test†	6 (15.8)	0 (0)	.03
Dix-Hallpike test (positioning test)‡			.64
Posterior/anterior semicircular canal BPPV	1 (2.6)	0 (0)	
Abnormal positioning nystagmus	4 (10.5)	3 (9.4)	
Test for horizontal semicircular canal BPPV			1.00
Horizontal semicircular canal BPPV	0 (0)	0 (0)	
Abnormal positioning nystagmus	3 (7.9)	3 (9.4)	
Horizontal headshake test	8 (21.1)	3 (9.4)	.21
Head impulse test	10 (26.3)	3 (9.4)	.12
Impaired visual fixation suppression of the VOR	14 (36.8)	3 (9.4)	.01
Subjective visual vertical	1 (2.6)	1 (3.1)	1.00
Tests evaluated by VNG, N (%)			
Smooth pursuit test	5 (13.2)	0 (0)	.06
Saccadic test	4 (10.5)	2 (6.2)	.68
Gaze-evoked nystagmus	0 (0)	0 (0)	1.00
Spontaneous nystagmus	2 (5.3)	0 (0)	.50
Positional test (static)	16 (42.1)	6 (18.8)	.04
Unilateral weakness caloric test	6/37 (16.2)	5 (15.6)	1.00
Directional preponderance caloric test	3/37 (8.1)	0 (0)	.24

†Romberg's test: 1 patient had truncal ataxia, no patients experienced fall tendency with open eyes.
‡Dix-Hallpike test: 1 patient fulfilled the criteria for BPPV.
BPPV = benign paroxysmal positional vertigo; VOR = vestibular ocular reflex; VNG = videonystagmography.

Boldingh et al. Headache. 2013;53(7):1123-33

Vestibular testing

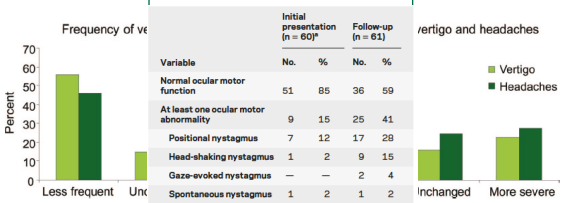
- Horizontal video-head-impulse test (37 vs. 9%, p=0.025) and caloric irrigation (67 vs. 22%, p=0.002) were significantly more often abnormal in Menière's disease than in vestibular migraine.[1]
- Horizontal video-head-impulse test abnormal in 8% of all vestibular migraine patients.[2]

1 Blödow et al. Acta Oto-Laryngologica. 2014; 134: 1239–1244
2 Yoo et al. Clin Otolaryngol. 2015

Longterm outcome over 5.5-11 years (n=60)

Table 2 Interictal ocular motor abnormalities at initial presentation and on follow-up

Variable	Initial presentation (n = 60)[a] No.	%	Follow-up (n = 61) No.	%
Normal ocular motor function	51	85	36	59
At least one ocular motor abnormality	9	15	25	41
Positional nystagmus	7	12	17	28
Head-shaking nystagmus	1	2	9	15
Gaze-evoked nystagmus	—	—	2	4
Spontaneous nystagmus	1	2	1	2
Saccadic pursuit[b]	—	—	5	8
Deficit of VOR suppression	1	2	5	8
Pathological saccades	—	—	—	—
Unilateral VOR deficit on head-impulse test	1	2	2	3



Radtke et al. Neurology 2012;79:1607–1614

Vestibular migraine - associated disorders

- Associated disorders:
  - Menière's disease
  - BPPV
  - Motion sickness
  - chronic subjective dizziness
- 57% with associated disorders that also trigger vestibular symptoms.[1]
- Migraine: 2-times increased risk, to develop a benign paroxysmal postional vertigo.[2]
- Anxiety disorders and depression in 20-35%.[3]

[1] Eggers et al. J Vestib Res 2014; 24: 387–395
[2] Chu et al. The Journal of Headache and Pain 2015
[3] Staab Continuum 2012;18(5):1118–1141

Treating vestibular migraine – current evicence

Vestibular migraine: **treatment**

In analogy to the treatment of migraine headaches

Acutely during the attacks:

NSAR (e.g. Naproxen 500mg or Ibuprofen 400-800mg)
Aspirin 500-1000mg
Paracetamol 1000mg
Combined analgetics
Triptans • oral (z.B. Sumatriptan 25-50mg, Naratriptan 2.5mg, Zolmitriptan 2.5-5mg) • nasal (Zolmitriptan 2.5-5mg, Sumatriptan 20mg) • s.c. (Sumatriptan 6mg)
Ergotamine derivates

Treatment options for VM - REVIEW

Acute treatment	Dosage	Trial (Reference)
Zolmitriptan	2.5 mg oral	Randomized controlled trial (RCT) (29)
Rizatriptan	10 mg oral	RCT, motion sickness (30)
PROPHYLACTIC TREATMENT		
Metoprolol	150 mg oral 100–200 mg oral	Retrospective cohort analysis (31) Retrospective cohort analysis (33)
Propranolol	160 mg oral 40–160 mg oral	Retrospective cohort analysis (31) Retrospective cohort analysis (32, 33)
Valproic acid	600 mg oral 600 mg oral	Retrospective cohort analysis (31) Cohort study, vestibulo-ocluar reflex (34)
Topiramate	50 mg oral 50–100 mg oral	Retrospective cohort analysis (31) Open-label, chart review (44)
Butterbur extract	50 mg oral	Retrospective cohort analysis (31)
Lamotrigine	75 mg oral 100 mg oral	Retrospective cohort analysis (31) Retrospective, open-label (41)
Amitriptyline	100 mg oral 10 mg oral	Retrospective cohort analysis (31) Retrospective cohort analysis (33)
Nortriptyline	25–75 mg oral	Open-label, chart review (44)
Flunarizine	5 mg oral 5–10 mg oral 5–10 mg	Retrospective cohort analysis (31) Retrospective, open-label (33) Open-label, post-marketing (36, 37)
Magnesium	400 mg oral	Retrospective cohort analysis (31)
Clonazepam	0,25–1 mg oral	Retrospective cohort analysis (33)
Cinnarizine	375–75 mg oral	Retrospective, open-label (35)

NON-MEDICAL TREATMENT		
Vestibular rehabilitation exercises	5 therapy sessions over 9 weeks	Uncontrolled, observational trial (43)
Caffeine cessation	4–6 weeks	Retrospective, observational trial (44)

→ **only retrospective studies!**

Obermann and Strupp 2014, Front. Neurol.

Pharmacological agents for the prevention of vestibular migraine (Review)

Maldonado Fernández M, Birdi JS, Irving GJ, Murdin L, Kivekäs I, Strupp M

THE COCHRANE COLLABORATION®

„We identified one ongoing study comparing metoprolol to placebo." ... „We found **no evidence from RCTs** to answer the question set out in the review objectives."

Update 2018!

- Recently published studies:
  - Propranolol vs. venlafaxine (Efexor) [1]
  - Cinnarizine + dimenhydrinate (Arlevert)[2]
  - Venlafaxine (Efexor) vs. sodium valproate vs. flunarizine (Sibelium)[3]
  - Acetazolamide (Diamox)[4]

[1] Salviz et al. Laryngoscope. 2016;126(1):169-74
[2] Teggi et al. Neurol Sci 2015;36:1869–1873
[3] Liu et al. Front Neurol. 2017;8:524
[4] Çelebisoy et al. Eur Arch Otorhinolaryngol. 2016;273(10):2947-51

Conclusions

- Study quality overall weak to moderate: prospective, randomised controlled studies rare.
- No plazebo-controlled studies!
- **Overall most convincing support for venlafaxine:**

→Efficacy in two prospective, randomised studies[1,3]

→Broader treatment specturm than sodium valproate, flunarizine[3] und propranolol[1].

→Optimal dosage unclear: 37.5mg/d sufficient?

- Data less convincing for cinnarizine + dimenhydrinate and acetazolamide (selection bias[2]) and more side-effects (acetazolamide).

[1] Salviz et al. Laryngoscope. 2016;126(1):169-74
[2] Teggi et al. Neurol Sci 2015;36:1869–1873
[3] Liu et al. Front Neurol. 2017;8:524
[4] Çelebisoy et al. Eur Arch Otorhinolaryngol. 2016;273(10):2947-51

Vestibular migraine: **prophylactic treatment**

Prophylactic treatment*	Side effects (SE)
Beta-blocker	
• Propranolol 40-240mg/d (Level A)	fatigue, hypotension, impotence, depression, bronchospasm
• Metoprolol 50-200mg/d (Level A)	fatigue, hypotension, impotence, depression, bronchospasm
Anticonvulsants	
• Topiramate 50-200mg/d (Level A)	Cognitive impairment, weight loss
• Valproat 800-1200mg/d (Level A)	Drowsiness, weight gain, tremor, haematological &liver abnormalities
Antidepressants	
• Amitriptyline 25-75mg/d (Level B)	Sedation, anticholinergic side-effects, conduction block
• Venlafaxine 75-150mg/d (Level B)	Cardiac arrhythmia, drowsiness, urinary retention
Calcium channel blocker	
• Flunarizine 5-10mg/d	Weight gain, sedation, depression
Diuretics	
• Acetazolamide 250-750mg/d (Level U)	Paraesthesia, nausea, sedation, hypokalaemia, hyperglycemia
Non-pharmaceutical treatments	
• Magnesium 30mmol/d	Diarrhea
• Vitamin B2 (Riboflavin) 400mg/d	
• Co-Enzym Q10 150-300mg/d	Gastrointestinal complaints

Modified after Goadsby and Sprenger 2010, Lanc Neurol.

Life style modifications

- Relaxation excercises
- Mild enducrance training (2-3x 45min per week), Attention: no RCTs.[1] Physical activity may also trigger headaches.
- Sleep hygiene (regular sleep-awake-cycles)
- Behavioral treatment, Thai-Chi, autogenic training[2,3]
- Acupuncture[4,5]

[1] Busch & Gaul. Exercise in migraine therapy—is there any evidence for efficacy? A critical review. *Headache* 2008; **48:** 890–99.
[2] Andrasik. Behavioral treatment of migraine: current status and future directions. *Expert Rev Neurother* 2004; **4:** 403–13.
[3] Nestoriuc Y, Martin A. Efficacy of biofeedback for migraine: a metaanalysis. *Pain* 2007; **128:** 111–27
[4] Diener et al. Efficacy of acupuncture for the prophylaxis of migraine: a multicentre RCT. *Lancet Neurol* 2006; **5:** 310–16.
[5] Linde K, Streng A, Jurgens S, et al. Acupuncture for patients with migraine: a randomized controlled trial. *JAMA* 2005; **293:** 2118–25.

Migraine prophylaxis – the Zurich approach

For mild or moderate symptoms

→ **Magnesium** (initial 5mmol/d, increase by 5mmol/d every 7 days, target dose 30mmol/d) PLUS

→ **Riboflavin** (Vitamin B2, 400mg/d)

→ Duration of combined treatment: at least 8-10 weeks

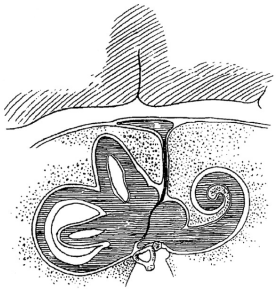
For severe symptoms

→ **Venlafaxin** (Efexor®, initially 37.5mg/d, target dose 150mg/d) for cases with accompyning psychiatric disorders (depression, anxiety)

→ **Topiramat** (Topamax®, voltage-gated sodium-channel blocker, initially 25mg/d, target dose 100mg/d). Attention: psychomotor slowing (10% of patients), weight loss, decreased potassium levels.

→ **Flunarizin** (Sibelium®, selective calcium-antagonist, initially 5mg at night, target dose 10mg) if vestibular symptoms dominate. Attention: weight gain, worsening of pre-existing depression or extrapyramidal tract signs.

Menière's disease



Baloh Neurology 2000

Diagnostic criteria according to the Classification Committee of the Bárány Society (2015)

Definite Menière's disease

A. Two or more spontaneous episodes of vertigo, **each lasting 20 minutes to 12 hours**.
B. Audiometrically documented low- to medium frequency **sensorineural hearing loss** in one ear, defining the affected ear on at least one occasion **before, during or after one of the episodes of vertigo.**
C. Fluctuating aural symptoms (hearing, tinnitus or fullness) in the affected ear.
D. Not better accounted for by another vestibular diagnosis.

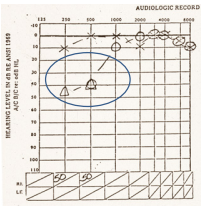
Probable Menière's disease

A. Two or more episodes of vertigo or dizziness, **each lasting 20 minutes to 24 hours.**
B. Fluctuating aural symptoms (hearing, tinnitus or fullness) in the affected ear
C. Not better accounted for by another vestibular diagnosis.

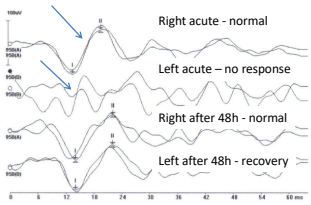
Lopez-Escamez et al. JVR. 2015;25:1-7

Menière's disease - diagnostics

Low-frequency hearing loss

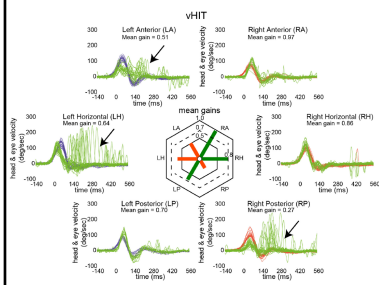


Transient loss of saccular function in the attack

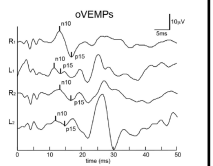


Kuo et al. Ann Otol Rhinol Laryngol 2005

Single subject data – bilateral Menière's disease

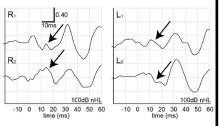


- Loss of function in the left horizontal and left anterior canal and the right posterior canal.



- AR=67% (cutoff ≤ 30%)
- reduced peak-to-peak amplitude (3.64 µV, 5th percentile = 5.8 µV)

cVEMPs

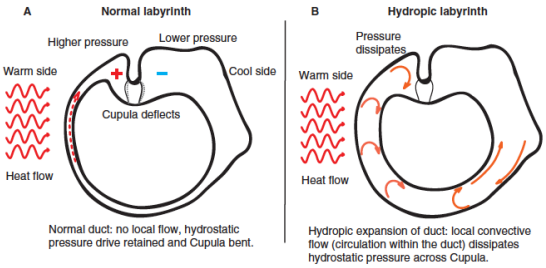


- Bilaterally absent bc cVEMPs

Tarnutzer et al. Front. Neurol. 9:244. doi: 10.3389/fneur.2018.00244

Menière's disease – acute peripheral vestibulopathy

Discrepancy between video-head-impulse test (vHIT) and caloric irrigation in MD

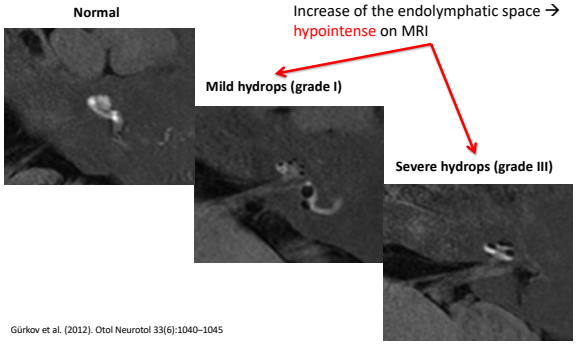


McGarvie et al. (2015) Acta Otol.

Clues to distinguish VM from MD

	Vestibular migraine	Menière's disease
Duration of attacks	5min-72h	20min – 12h (24h)
Type of dizziness	Spontaneous (rotational/non-directional) Position-dependent Motion-induced	Spontaneous (rotational/non-directional)
Accompanying symptoms	In at least 50% of attacks: migraine headaches, photo-/phonophobia, visual aura	Headaches (diagn. criteria for migraine according to IHS not met) or photophobia in up to 49%, migraine headaches (10%)
Ocular motor findings	Impaired VOR-suppression (36%)	
Vestibular test results	Ictal: nystagmus (70%; spontaneous or position-dependent) Interictal: HIT abnormal (26%), caloric irrigation abnormal (16%)	Ictal: wrong-way nystagmus (excitatory phase) or loss-of-function nystagmus Interictal: HIT abnormal (unilateral/bilateral)
Cochlear findings	Aural fullness, subjective hearing loss. Hearing loss, tinnitus (20-37%)	Aural fullness, tinnitus, hearing loss **mandatory**
Imaging	Increased rate of white matter lesions	Endolymphatic hydrops

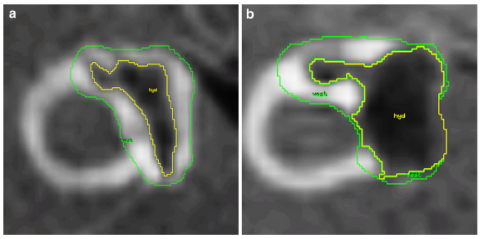
Hydrops MRI Gd intratympanal - findings



Gürkov et al. (2012). Otol Neurotol 33(6):1040–1045

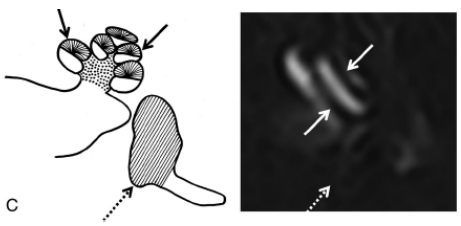
Hydrops MRI Gadolinnium intratympanal - findings

Mild endolymphatic hydrops Severe endolymphatic hydrops



Gürkov et al. (2012). Otol Neurotol 33(6):1040–1045

Hydrops MRI gadolinium i.v. → diffuses into perilymphatic space



Barath et al. (2014) AJNR

Hydrops MRI - sensitivity

Table 1 Endolymphatic hydrops in patients with symptoms associated with Menière's disorder classified with the AAO-HNS as possible, probable and definite Menière's disorder (205 ears with symptoms) and also in 45 contralateral ears without symptoms are included

Symptom/diagnosis	EH in cochlea only	EH in vestibule only	EH in both	Total with EH
Possible MD (n = 122)	8	43	57	108
Probable MD (n = 15)	2	4	8	14
Definite MD (n = 68)	1	4	63	68
Total (n = 250)	11	51	136	219

EH = endolymphatischer Hydrops; MD = Morbus Menière

Pyykko et al. (2013). BMJ open 3(2)

Evidence for different treatment options

Table 1. Level of evidence for treatment options in Menière's disease

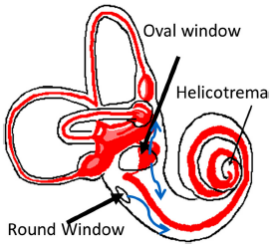
Type of treatment	Specific treatment	Level of evidence [66]	Comment
Dietary modification	Salt restriction	5	Expert opinion [15]
Oral pharmacotherapy	Diuretics	2b	Low quality RTCs showing benefit [18]
	Betahistine	2b	Low quality RCTs showing benefit [21•]
Intratympanic pharmacotherapy	Steroids	1b	RCT with clear benefit [26••]
	Gentamicin	1b	RCT with clear benefit [33•]
Surgical therapy	Endolymphatic sac surgery	2b	Two RCTs found no benefit, multiple cohort studies with benefit [41]
	Vestibular nerve section	2b	Cohort studies with clear benefit [46]
	Labyrinthectomy	2b	Cohort studies with clear benefit [67]
Other	Meniett device	2b	4 RCTs with no benefit, multiple cohort studies with benefit [68]

RCT randomized controlled trial. Level of evidence is based on a grading scale from the Oxford Centre for evidence-based medicine [66]

Sharon et al. Curr Treat Options Neurol. 2015;17:14

Treating Menière's disease

Access for intratympanic drug application



Gürkov et al. (2016). J Neurol 263 (Suppl 1):S71–S81

Efficacy and safety of betahistine treatment in patients with Meniere's disease: primary results of a long term, multicentre, double blind, randomised, placebo controlled, dose defining trial (BEMED trial)

Christine Adrion,[1,2] Carolin Simone Fischer,[1] Judith Wagner,[3] Robert Gürkov,[4] Ulrich Mansmann,[2] Michael Strupp[1,3] On behalf of the BEMED study group

WHAT THIS STUDY ADDS

Long term prophylactic treatment with betahistine dihydrochloride (at daily doses 2×24 mg or 3×48 mg) does not change the time course of vertigo episodes related to Meniere's disease compared with placebo

Placebo intervention as well as betahistine treatment showed the same reduction of attack rates over the study's nine month treatment period

Reliable and valid instruments that measure subjective vertigo symptoms (in particular, vertigo attacks caused by Meniere's disease) are lacking; derivation of definite or probable attacks caused by Meniere's disease, on the basis of raw patient recordings in vertigo diaries, is methodologically challenging and requires prespecified rules

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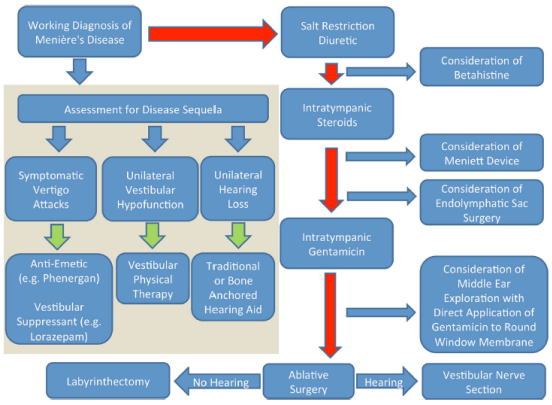

Sharon et al. Curr Treat Options Neurol. 2015;17:14

Conclusions 1

- Vestibular migraine:
  - Vestibular migraine in 10% of all migraine patients
  - Trigemino-vestibulocochlear reflex as possible underlying pathomechanism
  - Broad spectrum of clinical presentation
  - Relevant overlap to Menière's disease
  - Treatment: in analogy to migraine headaches
- Menière's disease
  - Combination of vestibular and cochlear symptoms **mandatory**
  - Treatment: no good evidence that betahistine improves the outcome.

Conclusions 2

- „(...) confirms a considerable overlap of symptoms in MD, VM, and pVM. In particular, **we could not identify any highly specific symptom for one of the three entities**. It is rather the combination of symptoms that should guide diagnostic reasoning." (Lopez-Escamez et al. 2015)
- Pragmatic treatment approach → treat the most probable cause first
- Promising new diagnostics: hydrops MRI
- Still important: pure tone audiogram obtained during the attack.

Lopez-Escamaz et al. FrontNeurol 2015; doi: 10.3389/fneur.2014.00265